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USER'S GUIDE

MODEL: HDB4-AT-C

PART NO. : CS11-1037

Hipotronics *inc.*

*applied high voltage technology for industry
utilities
& science*



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DANGER HIGH VOLTAGE



WARNING: This publication describes a product engineered and designed to supply HIGH VOLTAGE. Accordingly, maximum safeguards have been built into the equipment and the best safety techniques possible are set forth in the unit's operating instructions. These instructions contain cautions, warning the user to exercise great care in the use of certain controls and at appropriate points in the operating procedures. Despite these written warnings the operator of this equipment is nevertheless strongly advised to maintain a safety consciousness at all times. The following rules are particularly relevant and must be followed at all times.

**BEFORE CONNECTING INPUT POWER, GROUND CASE.
BEFORE UNGROUNDING CASE, DISCONNECT POWER.**

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100	Summary

DESCRIPTION/INTRODUCTION

The HDB4-AT-C is designed to be used by unskilled or semi-skilled personnel on a go/no-go basis in the testing of electrical components.

The HDB4-AT-C is designed to perform two major functions:

- 1) DC Hipot testing
- 2) Check wire continuity

Hipot testing is the process of testing the dielectric strength of the insulation and measuring the amount of leakage current through the insulation in a test sample at a chosen voltage.

The wire continuity check insures there is good continuity in the two conductor wires and in the ground wire, from the plug to the sample piece.

SPECIFICATIONS AND FEATURES

Input Voltage: 115 V ac, 60 Hz.

Output Voltage: 4 kV DC

Output Current: 5 mA DC

Ground Wire Continuity Check

An automatic third wire ground continuity check feature is incorporated in this unit. A toggle switch in the front of the unit activates this feature. This feature ensures that the ground lead is continuous from the plug to the device's housing. This continuity test is performed under low voltage conditions. An interlock to the test circuitry ensures that no high voltage testing may be performed unless there is a suitable ground.

Low voltage (6 Vac) is used to sense the conductor's resistance and a value of two (2) ohms or less will cause a relay to "pull in". When it does a front panel lamp will illuminate indicating a "good" condition and the high voltage test may be performed. If this indicator does not illuminate the ground lead is unacceptable and the high voltage test will be nullified.

It is possible to bypass this continuity test by setting the toggle switch to the DEFEAT position. The unit, in this case, may be used to test double insulated case units.

CONTROLS AND INDICATORS

The functions and uses of the various controls and indicators are described below.

ON

The toggle switch labeled ON provides input power to the variable autotransformer, which controls the output voltage and supply the output power. The AC POWER indicator should light up when the AC POWER is activated.

RAISE VOLTAGE

The RAISE VOLTAGE control is located in the center of the control panel and is used to regulate the output voltage. Markings on the RAISE VOLTAGE control denote the percentage of the unit's maximum output voltage (4 kV dc).

VOLTMETER

The average responding voltmeter is calibrated in rms and is connected through a high impedance resistor to the output. The resistor represents a current source for the metering circuit. The meter indicates the high voltage output in kilovolts.

LEAKAGE ADJUST

The LEAKAGE ADJUST potentiometer located on the front panel provides the means for limiting leakage current from the test sample. The overload current can be adjusted for maximum sensitivity (500 μ A) to minimum (5 mA). The RESET button must be depressed following a failure to permit further testing.

ARCING

The ARCING indicator will light up when arcing or corona is detected in the test sample. The sensing network is connected directly across the output for accurate testing.

F1

The 3A fuse on the control panel acts as overcurrent protection for the control circuitry.

OPERATION

1. Plug line cord into 115 V AC, 60 Hz. outlet. If the third grounding prong is not used, you must ground the pigtail of the two prong adapters.
2. Switch AC input toggle switch to the ON position. AC ON pilot light should glow.
3. Attach return potential test lead to gold binding post on front panel and attach other end to the casing of the test sample.

NOTE: If test sample has more than one dead metal part that is not electrically connected to the other, the parts must be connected together with jumper leads or some other means. It is advisable, however, to check each part separately, for ground continuity.

4. Setting the Leakage Detector

The leakage setting can be set by adjusting the pot located on the front panel. This setting may be altered to a value between 500 μ A and 5 mA. Place a resistor calculated to give required leakage current at a particular voltage between HV and ground. Raise voltage to the calculated level. Turn leakage adjust knob until unit trips. This will be your current setting.

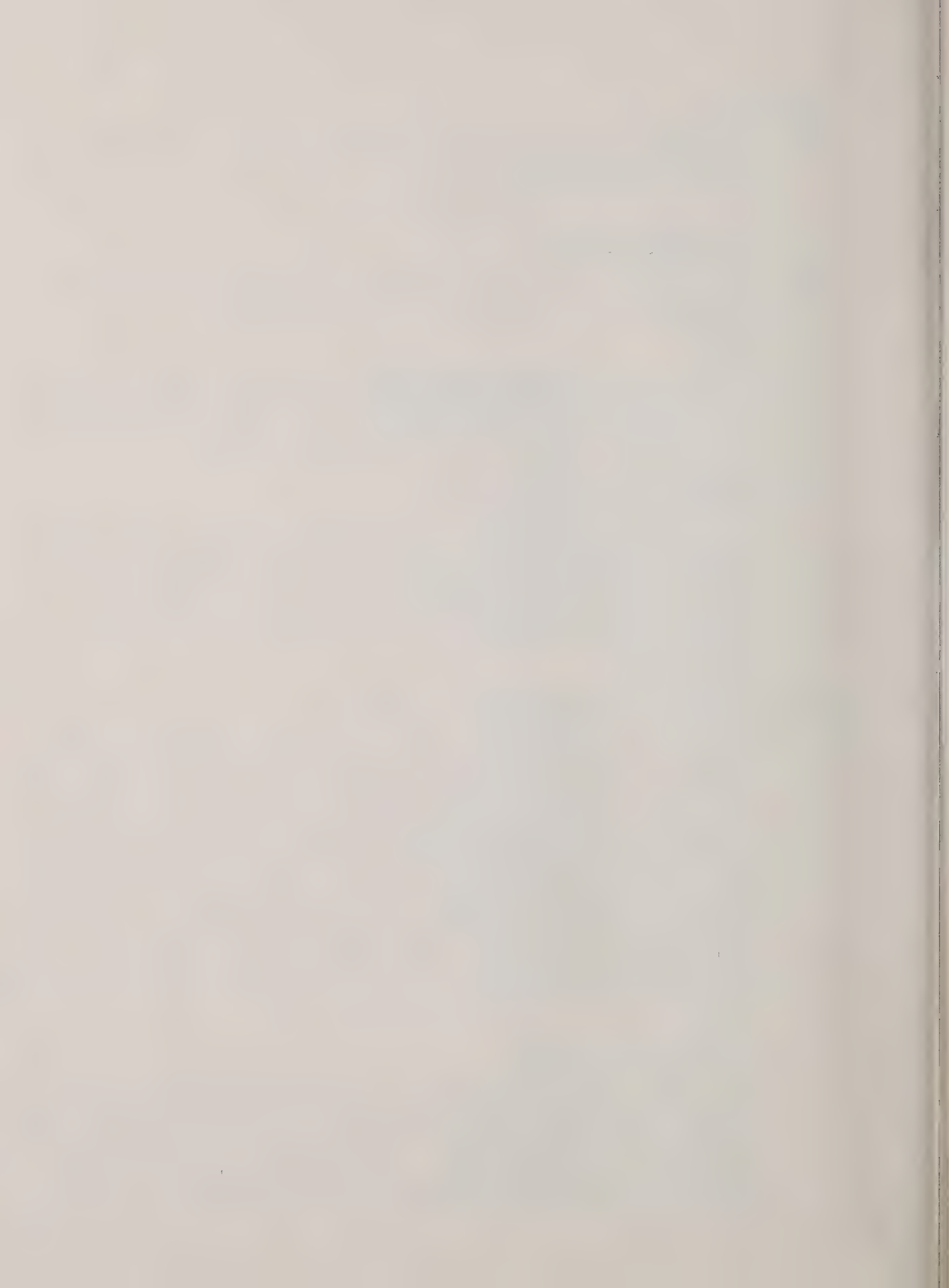
5. Setting the Timer Circuit (Optional)

If unit is equipped with timer circuit, it may be necessary to change test time in which voltage is applied to the test sample. To set timer to desired length of test, first remove back panel. With the toggle switch marked TIMER in the ON position, depress the HV ON test button. With a small screwdriver, turn the potentiometer, located below the blue timer circuit in the back of the unit, to adjust test time. Each time the timer completes its cycle it is necessary to release button and depress it again to re-activate timer. It may be necessary to repeat this step several times until the desired testing time is achieved. Once adjustment is completed, replace back panel.

It is possible to bypass the timer circuit by moving the TIMER toggle switch to OFF.

6. Setting Test Voltage

With TIMER OFF, (if equipped), and the ground check toggle switch in the DEFEAT position, push HV ON test button. Turn voltage adjust knob on test set to desired test voltage (read on meter). Release button. This step only has to be done once, when first turned on. By pushing button, voltage is applied to the test sample and read on the meter. The unit is now ready for test.



7. Plug line cord of test sample into plug marked HIGH VOLTAGE. Clip ground lead from test set to casing of lamp. The sample is now ready for test.

8. Ground Wire Continuity Check

With plug from test sample in the H.V. outlet, we are ready to check for continuity from the third prong (ground) of the sample plug to the sample casing. The ground check toggle switch should be in the GRDCHECK position. If there is good continuity, the GRDCHECK pilot light will glow. If it does not glow, there is a break in the ground wire and the lamp should be rejected and repaired. If the sample has more than one dead metal part, each part should be tested separately by moving the external ground wire to that part.

If the GRDCHECK pilot light illuminates, proceed to the next test.

9. HIPOT (Dielectric Withstand Test)

With TIMER ON (if equipped), and plug in HIGH VOLTAGE socket, press H.V. ON test button. Hold button down until timer completes its cycle. If unit is not equipped with timer hold button down for as long as the designated test time. If there is excessive leakage the overload buzzer and the OVERLOAD pilot light will be activated. To reset the unit push the RESET button. The unit is now ready for the next test sample. If there is an overload the test sample should be rejected and repaired. If there is no overload the test sample is ready for the next test.

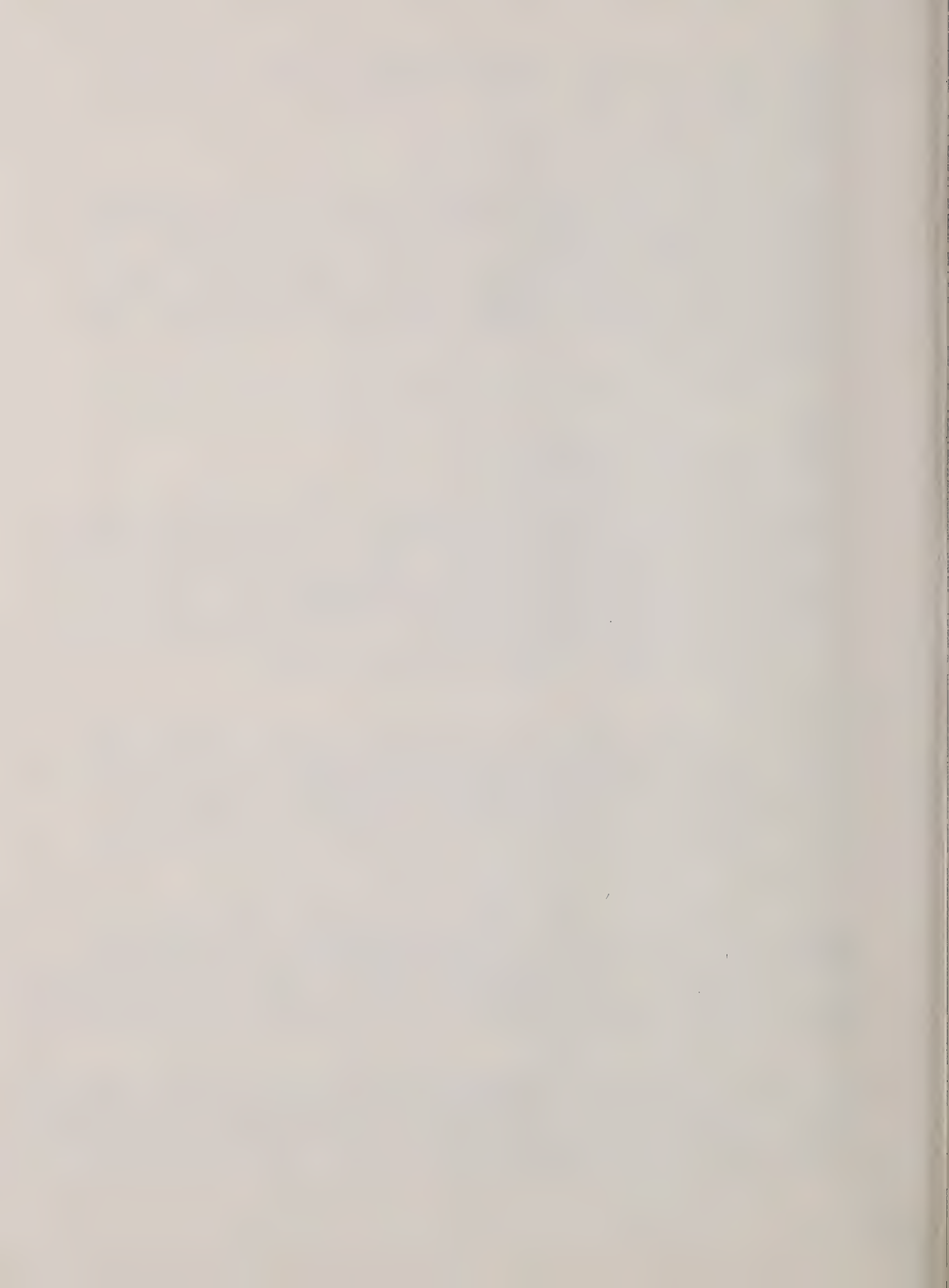
10. SHORT TEST

Plug lamp to be tested into socket marked SHORTS & CONTINUITY. Place the Mode Switch into the position marked CONT. If the (CONT./GRD CHECK) lights, there is a short from conductor to conductor and the lamp should be rejected. If the lamp does not glow, the lamp in test has passed and should proceed to the next test.

11. CONTINUITY TEST (For Lamps Only)

With test sample plugged into the test socket marked SHORTS & CONTINUITY insert metallic end of continuity probe into socket. Switch sample on. The buzzer will sound if there is good continuity from the plug to the light socket. If the buzzer does not sound there is a break in one or both of the conductors in which case the sample should be rejected.

12. At this point, the test sample has been tested for shorts, dielectric strength, conductor continuity and ground continuity. If the sample has passed all of these tests, it can be considered in good condition electrically. Disconnect return clip lead and plug from tester, and continue with next sample.



WARRANTY

HIPOTRONICS, INC. warrants to the original purchaser of any new merchandise that the merchandise is free from defects in material and workmanship under normal use and service for a period of one (1) year from the date of shipment. The obligation of Hipotronics, Inc. under this Warranty is limited, in its exclusive option, to repair, replace or issue credit for parts or materials which prove to be defective, and is subject to Purchaser's compliance with the Hipotronics, Inc. Warranty Claim Procedure as set forth below. The happening of any one or more of the following events will serve to void this Warranty and any defect or damage resulting therefrom is specifically excluded from Warranty coverage: (a) defects due to accident, negligence, alteration, modification, faulty installation, abuse or misuse by Purchaser or Purchaser's agents or employees; (b) attempted or actual dismantling, disassembling, service or repair by any person, firm or corporation not specifically authorized in writing by Hipotronics, Inc; (c) defects caused by or due to handling by carrier, or incurred during shipment, transshipment or other move.

This Warranty covers only those parts and/or materials deemed by Hipotronics, Inc. to be defective within the meaning of this Warranty. The liability of Hipotronics, Inc. shall be limited to the repair, replacement or issuance of credit for parts deemed defective within the meaning of this Warranty. Costs incurred by purchaser for labor or other expenses incidental to the inspection, repair, replacement or issuance of credit for such parts and/or material shall be the sole responsibility of purchaser. This Warranty shall not apply to any accessories, parts, or materials not manufactured or supplied by Hipotronics, Inc. and if, in the sole discretion of Hipotronics, Inc., Purchaser's claim relates to any materials or workmanship manufactured or performed by the supplier of a component part, or of the manufacturer of a device of which the defective part is a component, Hipotronics, Inc. reserves the right to disclaim liability under this Warranty and to direct that the Purchaser deal directly with such supplier or manufacturer. Hipotronics, Inc. agrees to assist the purchaser in processing or settling any such claim without prejudicing its position as to liability.

WARRANTY CLAIM PROCEDURE Compliance with the following Warranty Claim Procedure is a condition precedent to the obligation of Hipotronics, Inc. under this Warranty.

(a) Purchaser must notify Hipotronics, Inc. in writing by certified or registered mail, of the defect claimed within twelve (12) months after date of original shipment. Said notice shall describe in detail the defect, the defective part, and the alleged cause of defect; (b) at the exclusive option of Hipotronics, Inc., Purchaser shall dismantle or disassemble at Purchaser's cost and expense and shall ship the defective part or material prepaid to Hipotronics, Inc., Brewster, New York 10509, for inspection, or permit an authorized service representative of Hipotronics, Inc. to inspect the defective part or material at Purchaser's premises. If Hipotronics, Inc. shall inspect the part or material at the Purchaser's premises, Purchaser shall provide facilities for, and at Purchaser's cost and expense, dismantle, disassemble, or otherwise make accessible the subject part or material whether or not same is a component of or installed in a device other than that manufactured or supplied by Hipotronics, Inc. If disclosure shows that the defect is not one for which Hipotronics, Inc. is liable, the Purchaser agrees to reimburse Hipotronics, Inc. for all expense incurred; (c) upon receipt of the defective part or material, or after access to same, Hipotronics, Inc. shall inspect the part or material to determine the validity of Purchaser's claim.

The validity of any Warranty Claim, Purchaser's compliance with Hipotronics, Inc. Warranty Claim Procedure, the obligation to either repair, replace, or issue credit, or direct the purchaser to deal directly with a manufacturer or supplier are to be determined solely and exclusively by Hipotronics, Inc. and any determination so made shall be final and binding.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED ON THE PART OF HIPOTRONICS, INC., INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE, AND CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH THEREOF AND HIPOTRONICS, INC. NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON, FIRM OR CORPORATION TO ASSUME ANY LIABILITY OR OBLIGATION IN CONNECTION WITH THIS SALE ON ITS BEHALF AND PURCHASER ACKNOWLEDGES THAT NO REPRESENTATIONS EXCEPT THOSE MADE HEREIN HAVE BEEN MADE TO PURCHASER.

RETURNED MATERIAL FORM

If, for any reason, it should become necessary to return the equipment described in this publication to the factory, the Warranty Service Department of HIPOTRONICS must be contacted, at which time the following data must be given in order that we may identify the unit and determine the necessity for return. [Tel. (914) 279-8091] MODEL, SERIAL NO. and TYPE (Part No.) is indicated on the black and silver tag affixed to the unit.

MODEL: _____

SERIAL NUMBER: _____

TYPE (Part No.): _____

REASON FOR RETURN: _____

DEFECT: _____

ALLEGED CAUSE OF DEFECT: _____

If HIPOTRONICS deems return of the unit appropriate, an "Authorization for Return" tag will be issued. This will instruct you as to the method of return. The pink copy is for your records, the hard copy to be affixed to the unit being returned. If return is not deemed advisable, other inspection arrangements will be made.

NOTE

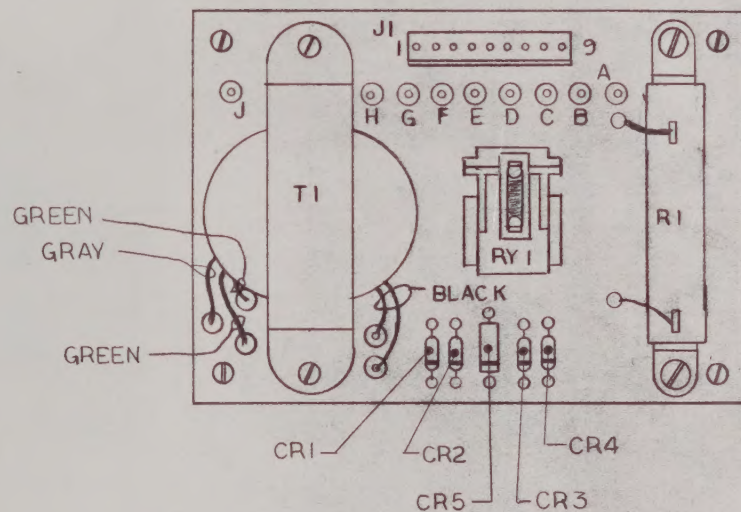
Material received at this plant without the proper authorization shall be held as "customer's property," with no service performed until such time as the proper steps have been taken.

Your cooperation is requested in order to ensure prompt service. Thank you.

PARTS ORDERING

To order replacement parts for this unit, please refer to the Parts List contained in the pocket of this publication. The number of the specific component is required, along with the TYPE (Part No.) of the unit. The TYPE (Part No.) is indicated on your Parts List, and on the black and silver tag affixed to the unit.

REVISIONS			
LTR	DESCRIPTION	DATE	APPRO
A	EC37-2'230	KR 1-85	TB
B	EC37-2935	KR 1-89	JB



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REVISIONS
DATE APPROVED
DESCRIPTION

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MP MASTER



MA35494